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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,833	06/24/2003	Hung-Lu Chang	CHAN3206-EM	3180

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BACON & THOMAS, PLLC
625 SLATERS LANE
FOURTH FLOOR
ALEXANDRIA, VA 22314

EXAMINER

SADULA, JENNIFER R

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/601,833

Applicant(s)

CHANG ET AL.

Examiner

Jennifer R. Sadula

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2003.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-12 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The Applicants claim an optical recording medium comprising layers a), b) and c) stacked on a surface of a substrate wherein said recording layer comprises mixed nickel oxides as a "major portion". Examiner notes that "major portion" has been interpreted as anything of NOx being the most prominent component of the composition.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Ito et al., Japanese Publication No's 62-137739 and 62-144998, each in view of Wada et al., U.S. Patent No 4,499,178.

Ito et al. JP 62-137739 teaches a recording layer comprising Sn and nickel oxides on a substrate with dielectric MgO layers on either side. These are formed by sputtering techniques with examples on page 3 (2×10^{-5} Torr). In example 1, Sn is 45 Å and NiO is 16 Å (page 3, upper left). NiO is 20-70% (abstract) which yields a recording layer with good weatherability.

Ito et al. JP 62-144998 teaches a recording film comprising 10-50% weight of nickel oxide and Te. The thickness of the recording layer may be 10-60nm. The reflection of the layer is 25-42% (table 1, page 3) wherein the reflection at 60% NiO is 18% and 7% at 100% NiO₂ (Table 1). Sputtering is used for deposition at 2×10^{-5} Torr.

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Wada et al '178 teaches an optical recording media according to figure 1 which comprises a transparent substrate (1), a recording layer (2), a dielectric layer (3) a reflection layer (4) and a protection layer (5). The recording layer may be various metals including Sn and Te which may have improvements in sensitivity and decreased reflectance including various oxides (3:28-52). These may be mixed or layered (3:53-67). The insulating dielectric prevents heat losses through the reflection layer. Thus may be formed of SiO_2 or SiO . The Protection layer includes SiO_2 , SiO and Al_2O_3 (5:19-24). The thickness of the insulating layer may be 10-5000 nm (5:1-2) the reflection layer may be Al, Rh, Pt, Ag, In, etc and have a thickness of 50-200nm (4:34-49). The recording layer thickness may be 5-150nm (4:10-15).

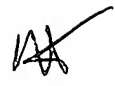
It would have been obvious to one skilled in the art to modify the inventions of either Ito et al by adding a reflection layer and a dielectric layer to improve reflection and control heat dissipation by using the teaching of Wada with a reasonable expectation of forming a useful optical recording media based upon the similarity of the recording layers (Sn or Te with an Oxide). These are taught to be used in various recording media and one skilled in the art would expect the resulting recording media to have the improvements in weather resistance, sensitivity and signal quality disclosed by Ito et al.

With regard to claims 8 & 9 the Examiner holds that these are product by process claims and the Applicant has the burden of proving the criticality of these as set forth in MPEP 2113. Also note claims 4&5 are considered intended use as the claims are directed to the medium, not the process of use.

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

~~Tominaga, (U.S. Patent No 5,334,433), in view of Iida et al., (U.S. Patent No 4,961,979)~~ 
wherein Tominaga teaches an optical recording medium comprising a dielectric thin film (2) a recording thin film (4) and a reflective thin film (5) stacked on the surface of a substrate (2) wherein the recording film contains an inorganic compound which decomposes to release a gas upon heating (abstract). With regard to Applicants claims 6-7 and 11-12, the dielectrics utilized by Tominaga include silicon oxide and aluminum oxide (3:44-58) and is in a thickness of 100-200nm (3:63) whereas the reflective layer is substantially the same material options as those of the Applicants (5:5-23) and is preferably 30-150nm in thickness (5:25). Tominaga further teaches that the material be write-once type material (abstract) wherein the recording layer is a thickness of 50-100nm (4:35). The intended purpose of Tominaga is to improve long-term reliable storage. Examiner notes that figures 1 and 2 exemplify the use of these oxides in a recording material in the order as specified by Applicants' claim 1, however, Tominaga does not exemplify the use of nickel oxides for this purpose.

Iida teaches a write-once optical recording medium comprising a substrate and a recording layer wherein the recording layer consists of a low oxide of nickel (abstract). As noted in figure 2, protective films and adhesives are utilized. Iida teaches that the material is necessary for the purpose of (1) evaporation of material forming the recording layer (i.e.: the release of gases and decomposition (5:32-34)) and (2) melting of the material forming the recording layer, leading to aggregation of the molten material (1:20-30). The use of the nickel oxides is for the

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expressed purpose of being highly sensitive even with low powered laser beams and capable of manufacture with high productivity and low cost (both of which are desirable features).

Examiner notes that nickel oxides are known to be more stable under normal atmospheric conditions than many other oxides such as those taught by Tominaga, thereby speeding up productivity and reducing the cost. Examiner notes that with regard to claims 8-10 Iida teaches in example 1 that the recording material is indeed sputtered in an Ar/O₂ atmosphere using the nickel target as specified. The thickness formed in examples 5-7 is 80nm (thereby satisfying Applicants claim 10 and being within the thickness range as specified by Tominaga).

Iida teaches that the materials are indeed transparent when in use (see examples). Additionally, Examiner notes that the temperature range utilized by claims 4-5 is the temperature (according to Applicants' own teaching in paragraph 9) at which the decomposition occurs and thus it is presumed that the gallium aluminum arsenide laser used by Iida for the same expressed purpose must satisfy this temperature range for heating and decomposition.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer R. Sadula whose telephone number is 571.272.1391.

The examiner can normally be reached on Monday through Friday, 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F. Huff can be reached on 571.272.1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JRS
March 30, 2005



MARTIN ANGEBRANDT
PRIMARY EXAMINER
GROUP 1100-1756